

Robust Optical Edge for a Starshade Petal, Phase II

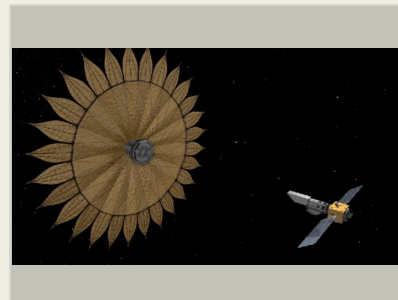
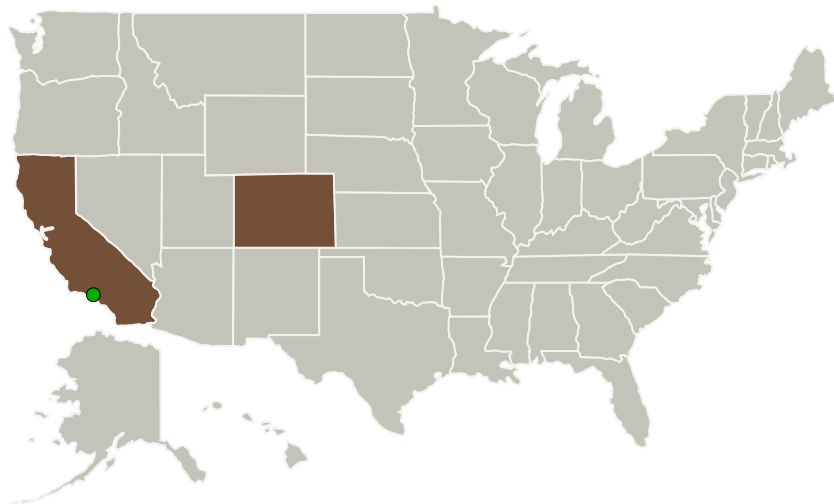
Completed Technology Project (2017 - 2020)



Project Introduction

The proposed Phase II program will refine and mature the design of the optical edge, optical shield and snubber assemblies within a Starshade petal. Prototypes of each sub-assembly will be built and tested after a rigorous trade study. The final sub-assembly designs will be built and integrated to a complete petal assembly that utilizes flight-like materials and fabrication processes. The full petal assembly will be tested to demonstrate survival to launch packaging and temperature extremes. A segment of a petal will be delivered to NASA JPL for thermal distortion and stability tests. More specifically, the optical edge assembly efforts will address the integration of a micro-thin metal alloy to a low CTE composite substrate and the alignment and handling procedures required to accurately position each segment to the petal structure. The optical shield effort will address opacity, thermal expansion, micrometeoroid mitigation and venting. The snubber effort will address preload, alignment and support for the petals in the furled and launch configuration.

Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
Tendeg LLC	Lead Organization	Industry Small Disadvantaged Business (SDB)	Louisville, Colorado
● Jet Propulsion Laboratory(JPL)	Supporting Organization	NASA Center	Pasadena, California

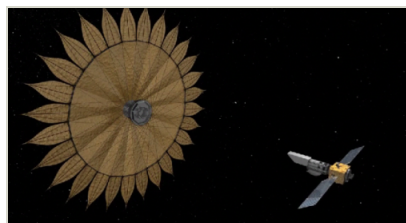
Primary U.S. Work Locations	
California	Colorado

Project Transitions

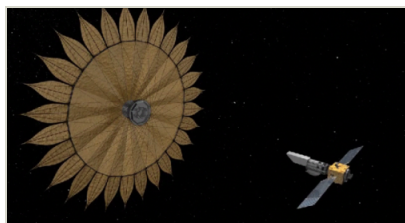
**April 2017:** Project Start**December 2020:** Closed out**Closeout Documentation:**

- Final Summary Chart(<https://techport.nasa.gov/file/140964>)

Images

**Briefing Chart Image**

Robust Optical Edge for a Starshade Petal, Phase II Briefing Chart Image
(<https://techport.nasa.gov/image/129149>)

**Final Summary Chart Image**

Robust Optical Edge for a Starshade Petal, Phase II
(<https://techport.nasa.gov/image/136373>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Tendeg LLC

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

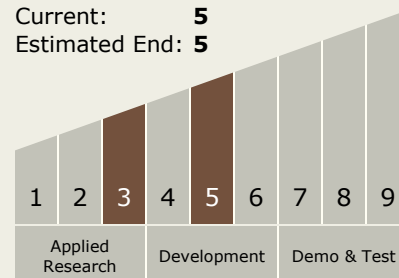
Carlos Torrez

Principal Investigator:

Gregg Freebury

Technology Maturity (TRL)

Start: **3**
Current: **5**
Estimated End: **5**



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Technology Areas

Primary:

- TX08 Sensors and Instruments
 - └ TX08.1 Remote Sensing Instruments/Sensors
 - └ TX08.1.3 Optical Components

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System